App. F. IX-4

1926-7

File No. 46-26

Previous References (1907)

Serial Nos. 1-5

Previous 7

Later References

p.21(E)

General and Revenue Secretariat.

Serial Nos. Five

Part B for Oct^r 27.

SUBJECT

Purchase of a plant from M/s B. Sitaramachar for the extraction of sandalwood oil by a solvent process.

D 3356-P&29-9-27

To

Director - I. W. Oil Factories.

Conservator of Factories

Comptroller to Govt Utrs

Q.2.

Minutes of the proposal of the Dis. Supdt S. O. of Subject to the conditions specified.

G. R. S. 111 — 1926

GENERAL AND REVENUE SECRETARIAT.

(S.D.T.)

NOTES.

File No. 46-26.

FILE HEADING.

Purchase of a plant from M/s. Sitharamachar for the extraction of Sandalwood oil by a solvent process

From

The Director, S.D.T.

No. 3996 Dated 22.3.1927 Received 23.3.1927.

Diary No. 6090	Enclos.	Spare Copies.	Serial No. 1

BRIEF ABSTRACT OF LETTER.

Requests sanction to the purchase of a plant at a cost of about Rs: 25,000 (including the charges of erection from M/s. Seetharamachar, for the extraction of Sandalwood oil

NOTES AND ORDERS.

The plant has already been installed at the factory in Mysore and experiments are being carried on. The proposal for the purchase of the plant is for orders; the cost will come to about Rs. 25,000/. The 3rd Member was pleased to observe that the proposals deserve sanction. H. Secy. has to be consulted.

16.4.27 = H Sec'y may be consulted.

H Sec'y) Sec'y D) 16/4 7/4 15.4.27

Fl 3518-26
9/16.4.27

NOTES—First Sheet.

8/4

6090

WD 01229—GPB—37,500—1-9-26
App. F. III—2]

(2

General and Revenue Secretariat

S. 07 File No. 46 of 192 6

Serial No.

Fd 3518-26

FINANCIAL SECRETARY
16 APR.
No. 1905

Newel
9/4

3 The Dirr has not dwelt on the facilities he has if any at all for such work, which requires highly trained chemists

B
18/4

4 The Director states that the experiments will have to be carried on for another 6 months and that complete figures would be available then for drawing a regular programme & further work—

5 I would suggest that for this period, the plant may be obtained on loan from Mr Sinclair Thomson on his usual terms.

A

B

6 The hire & experimental charges may be sanctioned and on the expiry of 6 months and the experiments finished, the plant may be bought out—

K
18/4/27

7 Please put up Dft to Dir engineering as in A - Also asking for est. of probable cost of B

20/4/27

WP
21/4

8 Draft. Submd.

leg. 21.4.27.

Dft for comm.

30th Mr

WP
30/4

CSX
25

W Issue.

3.5.27

WP
3/5

25/5/27

GEN. & REV. SECRETARIAT
18 APR. 1927
DEVELOPMENT BRANCH.

OFFICE OF THE SECOND KEEPER OF COUNCIL
2 MAY 1927
No. 6557

WD 1229—GPB—37,500—1-9-26
App. F. III—2]

General and Revenue Secretariat

S. O. R. File No. 46 of 1926

Serial No.

2

9778 & 7.5.27 to the Director, S.O.R. Write refn to ref & explain please if it is desirable to obtain the plant, in the first instance, on hire, and enquire what the probable hiring charges will be.

Letter no. 14519 dtd September 1927 from the Dir - S.O.R. Submitting proposals for the extraction of Sandalwood oil by the "Solvent" Process as an experimental to be taken up by the Essential Products Dn. of Mysore.

It Submd with a draft for consideration, & instructions on the p.u.d. 16.9.19.27.

DO Secy 20/9/27

for appl

Jt. Member) 22/9/27

DO 22/9/27

Appd 22/9/27

Issued 23/9/27

5423 a/c

H. Com 488

J. D. has not agreed. Draft and fair are submd.

(Secy) 29/9/27 (for perusal)

Communicated 29 SEP 1927

Mem Commerce Industries and Civil Aviation

NOTE—Contn. Sheet No. 3.

GEN. & REV. SECRETARIAT
10 MAY 1927
DEVELOPMENT BRANCH.

OFFICE OF THE SECRETARY TO GOVERNMENT OF INDIA
22 SEP 1927
No. 1629.

GEN. & REV. SECRETARIAT
29 SEP 1927
DEVELOPMENT BRANCH.

General and Revenue Secretariat. S. D. F. File No. 4 b of 1926.

Serial No.	
4	To the Dir. S.D.F., Conservator of F. and Comptroller, Mys. F. D. No. D-3356-8 dt 29.9.27. Approves of the proposal of the Dir. to get some sandalwood distilled by the Solvent Process by the Essen. Oils Branch Chemical Laboratory at an additional cost of about Rs. 1200, and requests the Director to submit a report on the results of the experiment, at the end of six months. Send with a draft returning the book received with dt: 1. 14.5/57/27. Issue. VS 7.10.27
5	Issued— no D.3755 dt 12.10.27.

GEN. & REV. SECRETARIAT
15 OCT. 1927
DEVELOPMENT BRANCH.

NOTE—Contn. sheet

WD 0324—GPB—60,000—24-5-27

Tel. Address :—"Sandal Bangalore"

SANDALWOOD OIL FACTORY
SANKEY'S LODGE

Bangalore, 21st March 1927.

3996/1

CONFIDENTIAL.
OFFICE OF THE
THIRD MEMBER OF GOVT.
24 MAR. 1927
No. 1468

DEVELOPMENT BRANCH.

FROM

THE DIRECTOR,

SANDALWOOD OIL FACTORIES IN MYSORE,

BANGALORE.

To

The Secretary to the Government of
His Highness the Maharaja of Mysore,
Development Departments.

S. O. F. 46-26-1

Sir,

I have the honour to invite reference to the interleaf between pages 3 and 9 of the advertisement section of the 'American Perfumer and Essential Oil Review' for the month of October 1926, wherein appears a special advertisement under the descriptive title of FIXORESIN by Messrs. Fritzsche Brothers, New York representatives of Messrs. Schimmel & Co., of Germany. It has been explained in the advertisement that this material is a perfect fixative and

> "answers in a most complete and satisfactory manner the question of how perfume materials can be stabilised and the fleeting fragrance 'fixed' to the utmost possible degree."

FIXORESIN of East Indian Sandalwood is one of the several odours offered by the firm.

Messrs. Schimmel & Co., of Germany are well known as the most important essential oil distillers in the world. Before the Sandalwood Oil Industry was established in Mysore, a considerable portion of the sandalwood sold in the State was being dealt with by this firm in Germany. Much opposition was faced by the factories from this firm when the factory product was placed in the markets of Japan and Germany.

The essential oils are ordinarily recovered from raw materials by

steam

steam distillation process and it is still the practice in most parts. Water distillation is also adopted by some firms, but apparently to a limited extent. The extraction of sandalwood oil by solvent process had been for a long time considered as not a commercial proposition. By the adoption of the solvent process an intermediate product has been obtained which has, after further treatment been placed on the market under the descriptive title of FIXORESIN of sandalwood. This contains not only sandalwood oil, recovered as essential oil by steam distillation process, but also a small quantity of fixed oil which sandalwood is known to contain and also a fair amount of resinous matter soluble in alcohol. It is the presence of these latter two that gives to the product the fixative properties referred to above. This product has been on the market for only a short time and it is a matter to be determined in future as to the extent to which the market can absorb it. Pure sandalwood oil is recoverable from this product by subjecting it to further redistillation under proper conditions.

Messrs. Schimmel & Co., have done the necessary preliminary work and placed the manufactured article on the market. Another German firm by the name of Heine & Co., of Leipzig has also made a similar effort and their product is placed on the market under the name of EXTRODOUR Sandalwood Fixateur. It is learnt that synthetic methanol is used by them as the solvent.

The Mysore Government sandalwood oil factories are known as the largest manufacturers of very high class sandalwood oil and they occupy a very prominent position in the essential oil market in the world. As such, the factories must be at least in line with the German firms and Oleo-resin of sandalwood manufactured by the Mysore Government factories should appear on the market before long. It is a point of considerable importance that the use of methanol as solvent by the factories will create an outlet for an important

bye-product

bye-product of the Bhadravati Iron Works.

A rough experiment was started by me some months back, using ethyl alcohol as a solvent. It was not much of a success and the extracted material had a strong smell of alcohol left in that. This question had at the same time been engaging the attention of Mr. B. Sitaramachar in his Essential oil factory at Mysore. He had succeeded in preparing this Oleo-resin or Fixoresin by using the methanol prepared at the Bhadravati Iron Works as the solvent. This information he very kindly placed at my disposal, for which I am much obliged to him. The experiment had been tried by him on a laboratory scale. In order to undertake such work on a fairly large scale, Mr. Sitaramachar had ordered for an extraction plant of the required size, consisting of a still and an extractor of a ton and half capacity, together with a condenser and receiving cistern, and an alcohol rectifying plant.

It will be evident from the above that the manufacture of this product is a problem of considerable importance to the sandalwood oil factories, as the factory should not be behind other Essential oil distillers in the world in respect of products manufactured out of East Indian sandalwood. The importance of this has been further increased by the competition of the West Australian sandalwood oil in the European markets. It is well recognised that, in respect of odour properties, the West Australian sandalwood oil is not a patch on our oil. Since the Fixoresin of sandalwood is much superior in odour to the steam distilled oil, our placing on the market our product in the form of Oleoresin would be a further advantage to us in competing with the West Australian stuff in the market. In view of the urgency and importance of the problem, the plant got by Mr. Sitaramachar was installed at the sandalwood oil factory at Mysore and the experimental work started in January last.

Owing

Owing to the acute water difficulty now being experienced at Mysore, the experimental work has not been progressing well. At the very commencement, there was some trouble with the plant and much inconvenience was felt in conducting the first experiment. A fair yield of oil was obtained out of the charge; but the figures require confirmation by continuous further experiments before any definite conclusions can be drawn therefrom. The second charge is now at work.

The solvent process has certain advantages over the steam distillation practice. An intermediate product, placed by the Germans on the market under the name of Fixoresin, is derived therefrom. It should give a higher yield of sandal oil than the steam distillation method, and the oil obtained by the solvent process is very superior in respect of odour. It is also likely to effect material savings in the fuel bill. But before forming any definite opinion, a series of experiments should be conducted which will also be helpful to determine the percentage of alcohol that may be recovered and the cost of refining it. This can only be settled by conducting the experimental work for a fairly long time and checking and verifying the results obtained from time to time.

I request you will kindly obtain sanction of Government for my purchasing the plant from Mr. B. Sitaramachar. The value of the unit now taken over from him is Rs.~~18,000~~ 18072-2-7 as per the original bills presented by him. It may cost about Rs.2,000 to erect the alcohol rectification plant and another Rs.2,000 for the refrigerating plant. In all, these experiments may involve a capital expenditure of about Rs.25,000.

Considering the importance/nature of this development work, it is very necessary that this must be undertaken by the factories without

without any delay. It is well known that all Essential oil factories have made ample provision for the continuous carrying on of research work, for which purpose a fair provision is annually set apart. Work of this nature and magnitude had not been taken on hand by the factories till now. The amount now requested by me for undertaking this work is less than one percent of the present gross earnings of the factories per annum. I request, for the above reasons, you will be kind enough to obtain early the sanction of Government for incurring an expenditure of Rs.25,000 on this work. I daresay that complete figures would be available within a period of about six months, after which a regular programme of further work will be drawn up on the basis of these figures.

This expenditure may be met out of the Depreciation fund of Rs.4.75 lakhs accumulated up to the end of December 1926.

I have the honour to be,

S i r,

Your most obedient servant,

Yeraswiga Rau

Director.

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No. D-9778. Dated, Bangalore, this 7th May, 1927

S.O.N. 46-26-2.

From

N. RAMA RAO, Esq., B. A., B. L.,
Secretary to the Government of His Highness the Maharaja of Mysore,
Development Departments.

To

Y. Narasinga Rau, Esq., B.A., B.L.,
Director of Sandalwood Oil Factories in Mysore.

Sir,

With reference to your letter No.3996 dated the 22nd March 1927 requesting sanction tothe purchase of a plant at a cost of about Rs.25,000 from Mr. B. Sitharamachar for the extraction of sandalwood Oil, I am directed to suggest that before deciding o the final purchase of the plant, it may be obtained on loan, fo a period of about six months on suitable terms. If the exper ments to be conducted during this period prove satisfactory in results, there may be no difficulty in according sanction to th final purchase of the plant.

I am to enquire what the hire, transhipment, experimental and incidental charges in this connection will come to.

I have the honour to be,
Sir,
Your most obedient servant,

for Secretary to Government,
Development Departments.

BRS/2

APP. F. VI. Gl.]

SUBJECT.....

.....

.....

Section S.O.7.

File No. 46-26.

Serial No. 2

Diary No. of letter replied to.....

No. 8-9778

To

The Director S.O.7.

General and Revenue Secretariat

(. .)

the *192*

Sir,

Date of issue 7/5/27

Signed by J.M.K.V.

With reference to your letter No. 3996 dated the 22nd March 1927 requesting sanction to the purchase of a plant at a cost of about Rs. 25,000 from M/s. B. Sitaramachar for the extraction of sandalwood oil, I am directed ~~to suggest that before deciding on the final purchase of the plant, it may be obtained on loan, for a trial that Govt. would~~ like to be assured about the successful working of the plant before according sanction

List of enclosures.....

Copied by.....

Examined by.....

over

WD 01265—GPB—31,000— 24-12-25

~~for its purchase, I am accordingly~~

~~to suggest that the plant may be~~

~~obtained on hire from the Sirkar~~ ~~on suitable te~~

~~remuneration for a period about~~

period of about six months during which necessary experiments may be carried out and the progress watched. on suitable terms. If the experiments to be conducted during this period prove satisfactory in results, there may be no difficulty in according sanction to the final purchase of the plant.

I am to enquire the probable

~~be so good as to state~~ what the

hire, ~~transhipment etc~~ expenses incidental ~~charges~~ in this connection.

I have &c

30/4

Leg. 21.6.27.

Address :—"Sandal Bangalore"

GOVERNMENT OF MYSORE

No. 1451/1

SANDALWOOD OIL FACTORY
SANKEY'S LODGE

Bangalore, 16th September 1927.

FROM

THE DIRECTOR,

SANDALWOOD OIL FACTORIES IN MYSORE,

BANGALORE.

TO

N. RAMA RAO, Esq., B.A., B.L.,

Secretary to the Government of

His Highness the Maharaja of Mysore,

Development Department, BANGALORE.

GOVT. OF MYSORE REV. DEPT. 17 SEP. 1927 DEVELOPMENT BRANCH

S.O.F.46-26-2

Sir,

With reference to your letter No.D.9778/S.O.F.46-26-2 dated the 7th of May 1927, in regard to the distillation of sandalwood by the solvent process, I have the honour to state that Mr. B. Sitaramachar is not agreeable to give the Extraction plant to the factories on hire, as suggested in your letter under reply. The subject was further discussed with a view of coming to a working arrangement for conducting the necessary experimental work to obtain reliable information regarding the value of this method of distillation. As a result thereof, Mr. B. Sitaramachar has now made definite proposals for carrying on the experimental work for the factories at the works of the Essenflour Products Ltd., Mysore. Copy of his letter No.165 dated the 13th of September 1927 is submitted herewith for the information of Government. The proposals made by him are mainly on the lines of the understanding arrived at, at the Conference held in the Chamber of the Second Member of Council on Monday the 5th instant.

Mr. B. Sitaramachar estimates that the experimental work may take about 4 to 6 months, that it necessitates the existing staff at his works to be increased to cope with the work and that it is likely to cost him about Rs.5,000 on this account.

To

To form a correct opinion as regards the comparative advantages of this method, I consider that at least ten tons of sandalwood shoul be subjected to this process so as to be able to examine the questio from all points of view. Further that would yield a sufficient quan tity of oil for testing the attitude of the market in all parts of the world towards this product. Provided no unexpected difficulties arise, it should be possible to deal with ten tons in about six months' time. As an alternative to his proposal, I suggested to Mr. B. Sitaramachar an average rate of Rs.500/- per ton of sandalwood distilled. Duly appreciating the convenience of the rate on the tonnage basis, he has accepted my suggestions and submitted his present proposals. His estimated cost of conducting the experiment may be realised if ten tons of wood are distilled by him. Hence his fixing the minimum quantity of wood to be placed at his disposal as ten tons.

I wish to add that this rate of Rs.500/- per ton is very favourable for the factories. It has cost the factories Rs.2.902 on the average for manufacturing a pound of oil during the official year 1926-27 just ended. The actual figures for the Mysore factory are Rs.3.2 per pound. The higher rate for the Mysore factory is, as Government are well aware, mainly due to the high price paid for poo quality of fuel. A ton of superior class of wood ordinarily yields about 120 pounds of oil. Under the present well established conditions the Mysore factory is spending about Rs.385/- for distilling a ton of such wood. The Extraction process is both new and complicated. The stuff will have to pass through three to four stages before clean oil is obtained. There are several difficulties to be properly overcome. Further, the Extraction process should give a higher yield of oil. It will thus be seen that the factories will only be paying about Rs.100/- more per ton of wood distilled, over and above the present scale of manufacturing charges. It means incurring an expenditure of about Rs.1,200 for conducting the experiment.

experiment. This is certainly a small expenditure in view of the possible advantages to the industry by adopting this method of distillation.

Supplying the Methanol alcohol for the purpose does not involve any additional expenditure as there is a fair stock of alcohol now at the Mysore factory.

I therefore recommend that the proposals contained in Mr. B. Sitaramachar's letter may be entirely sanctioned by Government. The main terms are:

The factories will pay distillation charges at the rate of Rs.500/- per ton of wood distilled;

The quantity of wood to be placed at the disposal of the Essenflour Products, Ltd., Mysore, for such distillation, will not be less than ten tons; and

The Methanol alcohol required for this extraction process will be supplied by the factories.

If the experiments prove successful, the services of the Agents in this connection may be duly appreciated by Government and a suitable remuneration paid to them for their valuable assistance to the industry.

Early orders are requested.

I have the honour to be,

S i r,

Your most obedient servant,

Director.

Copy of letter No.165 dated September 13th, 1927, from the Essenflou Products Ltd., Mysore, to the Director, Sandalwood Oil Factories in Mysore, Bangalore.

====

Distillation by Solvent Process.

We acknowledge by this opportunity the receipt of your letter No.5407 dated the 10th June, conveying to us the decision of Government in regard to your proposals for the purchase of our Extraction Plant, now installed in your Mysore Works. We have given due consideration to the question of letting out the plant to you on hire. We regret our inability to accept that proposal and are, therefore, prepared to take back our Plant.

In view of the fact that Messrs. Schimmel & Co., of Germany have placed on the market Oleo-Resin of Sandalwood, we, as representatives of the Mysore Government Sandalwood Oil Factories, are naturally desirous that the Mysore Government Factories should not lag behind in manufacturing a similar product and thus maintain the pre-eminent position now occupied by them in all the essential oil markets of the World. To convince Government of the advantages of this system of distillation, we are prepared to carry on the experimental work for the factories at our own works. In accordance with the understanding arrived at by us the other morning, after a discussion of the connected details, we shall be agreeable to carry on the experimental work on the following terms:-

1) That the factories will supply us with sandalwood powder prepared in the usual form for charging the stills. This powder should be of superior wood, either of Jajpokal, billets or roots class. This should be supplied to us in quantitites as and when we indent for the same on the factories.

2) That the factories will pay us distillation charges at the rate of Rs.500/- per ton. It is evident that this will entail very heavy work on us and that the extraction of the first few charges will involve considerable time and attention. As you are of the opinion that an

average

average rate on the tonnage basis will be more convenient to adopt, we are prepared to agree to your proposal on the understanding that the quantity of wood you will place at our disposal for distillation by the extraction process will not be less than ten tons.

3) The Methanol alcohol required for this extraction process will be supplied by you.

4) A regular account will be submitted to you for the wood distilled by us and the oil obtained therefrom. Its disposal, whether in the form of Oleo-resin or redistilled oil will be in accordance with your instructions.

5) We have reasons to hope that this experiment will prove very successful and that the results will effect a material improvement on the present methods of distillation both in respect of odour and the manufacturing charges.

We trust that, after the experiments prove successful, you will be good enough to duly remunerate us on the service rendered by us to the industry.

======

Bangalore,
16th September 1927.

Director,
Sandalwood Oil Factories.

Proceedings of the Govt. of H.H.
the Maharaja of Mysore.

Read -

Correspondence ending with letter No 1451 dated the 16th September 1927 from the Director of Sandalwood Oil Factories, submitting proposals for carrying on the experiment of sandalwood distillation by the "Solvent" process at the works of the Essenflour Products Ltd., Mysore.

Order No. D.3356-8/S.O.F. 46-26-4

Dated, Bangalore, 29th Septr. 1927.

In March 1927, the Director, S.O.F. requested sanction to the purchase of a plant for the extraction of sandalwood oil by the "Solvent" process, on the ground that this process had certain advantages over the steam distillation practice and that it ~~gave rise to~~ yielded an intermediate product known as Fixoresin; ~~Fixoresin of sandalwood is much superior in odour to the steam distilled oil.~~ bye Shaka is due which is very valuable in the essential oil industry.

Before deciding on the purchase of the plant at a heavy cost, it was suggested to the Director that the plant might be obtained on hire from the Essenflour Products Ltd. with a view to ~~exactly~~ find out its usefulness.

The Director now reports that the Essenflour Products Ltd., are not agreeable

to give the extraction plant on hire, but that they are however prepared to Conduct ~~carry on the~~ experimental ~~work~~ for the factories at the works ~~of the Company~~ subject to certain conditions and recommends that the Suggestion of ~~undertaking of the experiments by~~ the Firm may be approved.

With a view to form a correct opinion regarding the ~~comparative~~ advantages of the new ~~solvent~~ method, the Director considers that at least ~~two~~ ten tons of sandalwood should be ~~subjected~~ treated to the ~~new process~~ and that ~~this would~~ the Yield of this quantity would be ~~yield a~~ sufficient ~~quantity of oil for~~ to enable him to ~~his~~ test ~~the attitude of~~ the market for the new oil in the ~~in all parts of the world towards this~~ different Centres of product. The Director proposes to pay Demand. Rs.500/- a ton to the Essenflour Products Ltd., as against a sum of about Rs.385/- now being spent by the Mysore S.O.F. for distilling a ton of sandalwood ~~so that~~ and the experiment of distilling 10 tons ~~of sandalwood~~ through the agency ~~medium~~ of the Essenflour Products Ltd., ~~may not entail more than~~ will thus involve a ~~further~~ additional expenditure of about Rs.1200. ~~In the above circumstances~~, Govt. are pleased to approve of the proposals of the Director of S.O.F. subject to the following conditions which have ~~also~~ been and it is reported agreed to by the Essenflour Products Ltd.,

(i) The ~~sandalwood oil~~ Factories should supply to the Essenflour Products Ltd., as and when required not less than 10 tons of superior sandalwood powder prepared in the usual form for charging the stills.

(ii) The ~~Sandalwood Oil~~ Factories should pay distillation charges of Rs.500 per ton of sandalwood.

(iii) The Methanol alcohol required for the extraction should be supplied by the Factories.

(iv) Regular accounts should be submitted by the Essenfloür Products Ltd. for the wood distilled by them and the ~~oil obtained therefrom; the disposal of the products in the form of oleoresin or redistilled oil and the by-products being made according to the instructions of the Director.~~

The products Manufactured

The Director of Sandalwood Oil Factories is requested to submit a detailed report at the end of six months ~~with~~ on the results of the experiments ~~conducted by~~ made the ~~Essenfleur Products Ltd.~~.

Govt are glad to learn that the experiments ~~conducted~~ proposed to be carried out are expected to give successful and quick results. The Govt value and appreciate the readiness shown by the Essenflour Products Ltd in undertaking these

By Order,
Secretary to Government,
Development Departments.

To

The Director of Sandalwood Oil Factories
The Conservator of Forests in Mysore.
The Comptroller to Govt., Mins. & D.

No. 199/27.

ACH.

2.9.27

17

A. P. F. VI. G1]

SUBJECT.....

.....

.....

Section S. D. F.

File No. 4 b. 2 6.

Serial No. 5

No. D 3755 9/12/27

Enclose

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *192*

To The Director S. D

Sir,

I am directed to return herewith copy of "The American Perfumer and Essential Oil Review" for October 1927 received with your letter no. 3999 dd 22nd March 1927

I have the honour to be,

Sir,

Your most obedient servant,

J. 10. 27

for Secretary.

Date of issue 12. 10. 27

Signed by .....

List of enclosures.....

Copied by .....

Examined by .....

over

WD0325—GPB—80,000—26-5-27